## (19) World Intellectual Property Organization International Bureau





(43) International Publication Date 29 April 2004 (29.04.2004)

PCT

(10) International Publication Number WO 2004/036344 A3

(51) International Patent Classification<sup>7</sup>:

G06F 17/30

(21) International Application Number:

PCT/IL2003/000848

(22) International Filing Date: 19 October 2003 (19.10.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 60/418,220

15 October 2002 (15.10.2002) US

(71) Applicant (for all designated States except US): ACTIVE-BASE LTD. [IL/IL]; 15 Aluf Sade St., 53583 Givatayim (IL).

(72) Inventors; and

- (75) Inventors/Applicants (for US only): BOUKOBZA, Eric [IL/IL]; 15 Aluf Sade St., 53583 Givataim (IL). NISSENBOIM, Yoram [IL/IL]; 15 Aluf Sade St., 53583 Givataim (IL).
- (74) Agent: FRIEDMAN, Mark, M.; DR. MARK FRIED-MAN LTD., 7 Haomanim Street, 67897 Tel Aviv (IL).

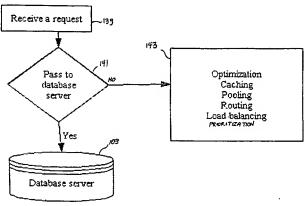
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 18 November 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SYSTEM AND METHOD FOR THE OPTIMIZATION OF DATABASE



(57) Abstract: A database network router (DNR) (101) in a database network includes a client access module (113) and a database resource manager (117) that communicate with each other using a common software interface. The client access module (113) communicates with clients (105) including application servers and external database servers (103); and the database resource manager (117) communicates with the database servers (103). The DNR (101) also includes a protocol manager (115) for handling multiple database protocols. The database network router (101) also includes local data cache storage (137) to store commonly used data objects, results of parsed query statement (179), non-optimized query statements. The database network router (101) identifies and assigns a priority to each client (111) on log-in. The DNR (101) provides a method for connections pooling, a method for balancing the load in a database networks and a method for synchronizing the data stored in cache memory with the database network and method for synchronizing the data stored in cache memory with the database network. The DNR (101) also provides a method for monitoring and optimizing data queries to improve the performance of the database network. The DNR (101) also provides a method to migrate from an old (404) to a new version (103) of a database.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL03/00848

A. CLASSIFICATION OF SUBJECT MATTER  IPC(7) : G06 F 17/30  US CL : 707/4				
According to International Patent Classification (IPC) or to both national classification and IPC				
B. FIELDS SEARCHED				
Minimum documentation searched (classification system followed by classification symbols) U.S.: 707/4, 3, 100				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched				
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category *	Citation of document, with indication, where appropriate, of the relevant passages		Relevant to claim No.	
Х	US 5,611,048 A (JACOB et al) 11 March 1997 (11.03.1997), column 3, lines 65-67 to column 4, lines 1-19).		1-5	
x	US 5,848,415 A (GUCK) 08 December 1998 (12.08.1998), column 3, lines 24-41.		11-13	
x	US 6,112,249 A (BADER et al) 09 August 2000 (09.08.2000), column 2, lines 52-69.		14-15	
x	US 5,546,580 A (SELIGER et al) 13 August 1996 (13.08.1996), column 1, lines 60-67.		16	
x	US 6,363,398 B1 (ANDERSEN) 26 March 2002 (26.03.2002), column 1, lines 66-67 to		17-21	
х	column 2, lines 1-36. US 6,345,266 B1 (GANGULY et al) 05 Feburary 2002 (05.02.2002), column 14, lines 52-		22	
67. X US 5,640,556 A (TAMURA) 17 June 1997 (17.06.1997), column 2, lines 3-39.		6-10		
Further documents are listed in the continuation of Box C. See patent family annex.				
considered to involve an inventive step when combined with one or more other such docum		emational filing date or priority ation but cited to understand the		
		ention		
		considered novel or cannot be considered	considered to involve an inventive step	
		considered to involve an inventive step when the document is combined with one or more other such documents, such combination		
"O" document referring to an oral disclosure, use, exhibition or other means		being obvious to a person skilled in th	e art	
-P" document published prior to the international filing date but later than the "& priority date claimed		"&" document member of the same patent	family	
Date of the actual completion of the international search		Date of mailing of the international search report  0 8 OCT 2004		
31 August 2004 (31.08.2004)		Authorized officer	<del> </del>	
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US		D		
Commissioner for Patents		Baoquoc N. To Paggy Harrod		
P.O. Box 1450 Alexandria, Virginia 22313-1450		Telephone No. 703-305-1949	•	
Facsimile No. (703)305-3230				

Form PCT/ISA/210 (second sheet) (July 1998)